

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 7-12 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Ricketson et al. (5,307,978) in view of Sabyeying (6,062,459).

Regarding claim 7, Ricketson discloses a wirebonding apparatus for wirebonding a lead frames being part of a lead frame assembly to semiconductor products mounted on the respective lead frames, which comprises a wirebonding frame 26 (i.e. platform), an indexing device for indexing the lead frame 10 in an index direction relative to the wirebonding frame (figure 2). There is a first, stationary clamp 33 (top) and 34 (bottom) in the index direction relative to the wirebonding frame 26 (figure 2 and column 4 lines 31-50). Ricketson also states a second clamp 40 (grippers on the indexing head 16) for indexing and clamping lead frames that is movable in the index direction to the wirebonding frame (figure 4).

Ricketson does not disclose that the clamp 40 clamps the leads. However, the clamp would be capable of clamping the leads since the leads are located on the lead frame that is being clamped. While Ricketson doesn't mention the movable clamp clamping the second row of lead frames, it would be capable of doing so by use of the

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optical sensors 32 (figure 2) there by permitting the movable clamp to be located exactly opposite any one of the bonding sites of the lead frame (column 5 lines 54-59). While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function (MPEP 2114). This wirebonding apparatus uses an automatic wire bonder to perform wirebonding operations at the bonding site 72. The wirebonding tool bonds the semiconductors that are gripped 40 and indexed by the indexing head 16 and brought to the stationary clamp (column 7 lines 8-16 and figure 2 and 4).

Ricketson does not specifically state more than one row of lead frames. While the apparatus of Ricketson does not expressly teach multiple rows of lead frames, the apparatus would be capable of performing a wirebonding operation on multiple rows because Ricketson states that the Y table 19 can move in the Y direction (figure 2 and column 4 lines 31-38). However, Sabyeying does teach a stationary wire bonding clamp 100 for accommodating multiple adjacent rows of lead frames 117 (figure 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the clamp by Sabyeying in the apparatus of Ricketson for the benefit of a more efficient wirebonding system that allows for simultaneous bonding of multiple rows of lead frames.

Regarding claim 8, Ricketson states that while the automatic wire bonder is performing bonding on the site, the gripping mechanism 40 releases the lead frame 10 from the bonding site 72 and repositions itself using the sensor 32 (column 7 lines 8-16 and figure 2 and 4).

Regarding claim 10, the apparatus of Ricketson does not expressly teach multiple/even rows of lead frames, the apparatus would be capable of performing a wirebonding operation on multiple/even rows because Ricketson states that the Y table 19 can move in the Y direction (figure 2 and column 4 lines 31-38). However, Sabyeying does teach a stationary wire bonding clamp 100 for accommodating multiple adjacent rows of lead frames 117 (figure 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the clamp by Sabyeying

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in the apparatus of Ricketson for the benefit of a more efficient wirebonding system that allows for simultaneous bonding of multiple/even rows of lead frames.

Regarding claim 11, while features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function (MPEP 2114). The apparatus of Ricketson would be capable of adapting to perform a wirebonding operation while the first clamp is released.

Regarding claim 12, while features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function (MPEP 2114). The wirebonding apparatus of Ricketson would be capable further clamping n lead frames of a further row of lead frames, the n lead frames of the further row being adjacent to the n adjacent lead frames of the first row and the further row of lead frames being adjacent and parallel to the first row as seen in the index direction.

Allowable Subject Matter

3. Claims 1-6 are allowed.

The following is an examiner's statement of reasons for allowance:

Regarding claim 1, the prior art does not teach or suggest a method for wirebonding leads of a plurality of lead frames being part of a lead frame assembly by wirebonding tool to semiconductor products mounted on the respective lead frames, the lead frame assembly being indexable in an index direction relative to a wirebonding

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frame, and comprising a first row of lead frames and a second row of lead frames that is adjacent and parallel to the first row as seen in the index direction, the lead frames being spaced from each other at a lead frame pitch in the index direction where the method as stated in the claim includes clamping the leads of n adjacent lead frames of the second row by a second clamp, and wirebonding the leads of the n lead frames of the second row to the corresponding semiconductor product.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

4. Applicant's arguments, see Applicant Arguments/Remarks, filed 12/9/2008, with respect to claims 1-6 have been fully considered and are persuasive.

5. The Applicant argues that the Examiner's position of the apparatus claims being "capable of" performing the function is flawed because such language is deemed functional and not afforded patentable weight when found in the preamble.

While *Ex parte Masham*, 2USPQ2d 1647 recites functional language in the preamble, the functional language of the claim is not limited to only the preamble.

The Examiner refers to MPEP 2114 as stated below:

As per MPEP 2114 relating to Apparatus and Article claims – Functional Language: While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997). As the references and the claimed *APARATUS* are patentably indistinguishable, the apparatus of the prior art is reasonable expected to be able to perform the claimed functionality (i.e. *LIMITATION*).

As can be read above, the functional language is not limited to the preamble of the claim. It is the Examiner's position that the term "configured" does not add any structural limitations to the claim. As stated in the rejection above, the Prior Art of record structurally meets the limitations of the claimed invention and would be capable of performing the functional limitations.

Conclusion

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIN B. SAAD whose telephone number is (571)270-3634. The examiner can normally be reached on Monday through Thursday from 8am-5pm Eastern time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on (571) 272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/E. B. S./
Examiner, Art Unit 1793
2/25/2009

/Kiley Stoner/
Primary Examiner, Art Unit 1793

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